

# Arataki

Regional direction

Te Matau-a-Māui – Hawke's Bay

September 2023 v1.1



# At a glance

Te Matau-a-Māui Hawke’s Bay is home to about 166,000 people, or 3.5% of the population of Aotearoa New Zealand.<sup>1</sup> It’s expected to grow to 202,000 by 2048.<sup>2</sup> Ahuriri Napier and Heretaunga Hastings are the main employment centres and home to nearly 80% of the region’s population.<sup>3</sup> This is where most of the region’s future growth will occur.

By 2048, nearly 30% of the population in the districts of Ahuriri and Central Hawke’s Bay is expected to be older than 65, compared to the national average of 23%.<sup>4</sup>

Outside the two main centres, jobs in primary production such as horticulture, wine, sheep and beef farming and processing are significant. The importance of logging is forecast to grow.

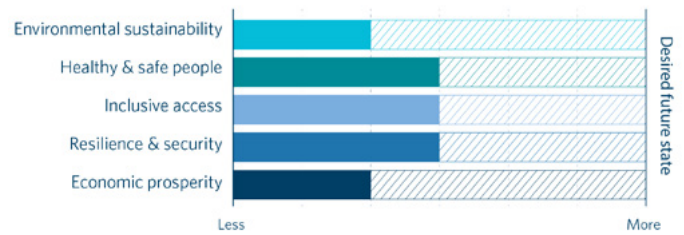
There is an uneven distribution of economic opportunities and growth in the region, with the north experiencing declining populations, high unemployment, and low incomes.<sup>5</sup>

There are several natural hazard risks related to landslips, flooding, coastal inundation/erosion, and earthquake/liquefaction.

There’s an opportunity to build on average rates of walking and cycling in Ahuriri and Heretaunga, by ongoing investment in safe facilities that can accommodate mobility scooters. Active modes are likely the best ways to reduce vehicle kilometres travelled (VKT). Increasing the share of freight moved by rail and coastal shipping will also have an important role to play in reducing emissions.

Other critical transport challenges facing the region over the next three decades include safety, resilience, and supporting the transition to a low-carbon economy.

### Scale of effort to deliver outcomes in Te Matau-a-Māui – Hawke’s Bay



The regional ratings show how Waka Kotahi has assessed the potential scale of effort required in each region to achieve the future desired state for each outcome over the next 10 years. The ratings in each region indicate where effort can be best focused and inform conversations with partners about priority outcomes in each region.

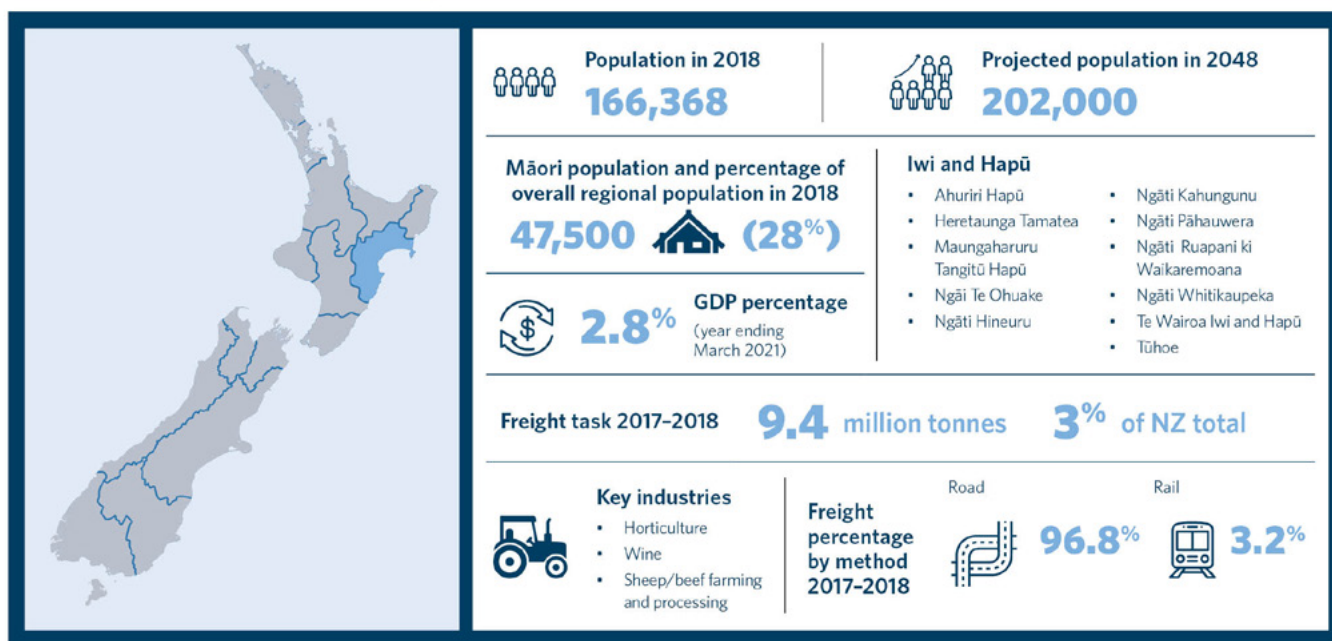
The rating assessments are based on evidence using system-levels metrics. Further details are captured in the methodology document.

The September 2023 v1.1 release of *Arataki* includes updates to reflect the severe weather events of 2023 and correct minor errors. Most sections of the *Regional direction Te Matau-a-Māui – Hawke’s Bay* have climate-related updates.

# Context



## Te Matau-a-Māui – Hawke’s Bay



The population of Te Matau-a-Māui Hawke’s Bay is projected to grow from 166,368 to about 202,000 by 2048, or 3% of the country’s population.<sup>6</sup> Most of this growth will be in Ahuriri Napier and Heretaunga Hastings.

By 2048, nearly 30% of the population of Ahuriri and central districts of Te Matau-a-Māui is expected to be older than 65 years, well ahead of the national average of 23%.<sup>7</sup> Providing good access for residents over 65 will be important to ensure they remain socially connected, active, and able to participate in their communities.

In 2018, 47,500 Māori lived in Te Matau-a-Māui, making up 28% of the region’s population.<sup>8</sup> This is almost 1.7 times the national rate of 16.5%.<sup>9</sup> Most Māori live in Heretaunga, where they make up 28% of the district’s population.<sup>10</sup>

The iwi and hapū in the region are Ahuriri Hapū, Heretaunga Tamatea, Maungaharuru Tangitū Hapū, Ngāi Te Ohuake, Ngāti Hineuru, Ngāti Kahungunu, Ngāti Pāhauwera, Ngāti Ruapani ki Waikaremoana, Ngāti Whitikaupeka, Te Wairoa Iwi and Hapū, and Tūhoe.<sup>11</sup>

*Te Ōhanga Māori - The Māori Economy 2018* includes information for the Tākitimu rohe, which relates to the Te Matau-a-Māui region. It notes the asset base in the rohe is valued at \$3 billion.<sup>12</sup> Property and primary sector are key industries.<sup>13</sup>

Primary industries such as horticulture, wine, sheep and beef farming and processing are important for the region. Log volumes for export through Te Herenga Waka o Ahuriri Napier Port are forecast to grow.

Tourism, including cruise ships in summer and cycle tourism, were forecast to grow before to the COVID-19 pandemic.<sup>14</sup>

While the existing transport system has capacity to accommodate forecast growth, there is likely to be growing pressure around the Te Herenga Waka o Ahuriri because of increased heavy vehicle trips.

The construction of Te Ahu a Turanga: Manawatū-Tararua highway project, an alternate road between Manawatū and Te Matau-a-Māui, is important to supporting the safe, reliable, and efficient movement of people and freight.

The rail network connects Te Herenga Waka o Ahuriri to distribution hubs in Te Papa-i-Oea Palmerston North and extends north to Wairoa, though the Wairoa-Ahuriri rail line is currently closed. Rail services are focused on freight container movements between Te Papa-i-Oea and Te Herenga Waka o Ahuriri. The line north to Wairoa is focused on transporting logs to Te Herenga Waka o Ahuriri. Rail usage has declined since 2014, following the loss of two key customers. Increased truck movement has resulted in more crashes involving trucks.

Severe weather events are already affecting the land transport system of Te Matau-a-Māui. In February 2023, Cyclone Gabrielle caused flooding, landslips, and storm damage resulting in road closures of SH2 at multiple sites, SH5 between Ahuriri and Taupō, and SH38 between Frasertown and Aniwanuiwa Falls. Rail was also affected between Woodville and Heretaunga, Heretaunga and Napier Port, and Ahuriri and Wairoa.

The freight task in Te Matau-a-Māui in 2017–2018 was 9.4 million tonnes, or around 3% of the country’s total.<sup>15</sup> A total of 96.8% of the freight task tonnage in Te Matau-a-Māui was moved by road and 3.2% by rail.<sup>16</sup>



# Te Matau- a-Māui - Hawke's Bay: Outlook

While the population of Te Matau-a-Māui is expected to grow by 22% during the next 30 years, its economy will need to transform as Aotearoa New Zealand transitions to a low carbon future.

The most significant changes to the region's transport system will include:

- recovering and rebuilding after Cyclone Gabrielle
- transforming to lower emissions
- making significant improvements to safety and resilience.

An ageing population and high numbers of residents on fixed incomes will put pressure on the region's ability to:

- maintain existing networks
- fund new infrastructure
- provide appropriate services to residents.

Climate change will make this even harder.

Steps to make progress towards transport outcomes in a more efficient and cost-effective way include:

- renewing the focus on small-scale projects and getting more from existing infrastructure
- reallocating existing road space and making temporary or low-cost improvements
- influencing travel behaviour and growth patterns.

Even with these steps, more investment from a wider range of finance and funding sources, is required to achieve key goals. New sources should be investigated, especially where these incentivise growth or transport outcomes.

This section uses the *Transport Outcomes Framework* from Te Manatū Waka Ministry of Transport to support a ‘decide and provide’

approach to proactively plan the desired future state we want to achieve. Key challenges and opportunities are identified and discussed. Then we highlight the most important actions to be taken to make progress on each outcome.

## Environmental sustainability

### Challenges and opportunities

Te Matau-a-Māui Hawke’s Bay will need to make an important contribution to reducing transport emissions, to reach the 2035 targets set in the government’s *Emissions Reduction Plan* and net-zero emissions by 2050.<sup>17</sup>

As main urban centres, Ahuriri Napier and Heretaunga Hastings present the greatest opportunity to support emissions reductions by providing alternative transport options and reducing the need to travel. This will require significant change to how people travel in districts with high private vehicle usage.

There are significant numbers of daily commuter trips between Ahuriri and Heretaunga, with 93% of journeys to work by private vehicle.<sup>18</sup> While public transport usage is low, walking and cycling in the urban areas is slightly above the national average.<sup>19</sup>

Care is required to ensure efforts to reduce vehicle kilometres travelled (VKT) don’t unfairly impact specific communities or groups.

We need to reduce freight transport carbon through:

- adopting lower-emitting fuels
- increasing mode share for rail and coastal shipping.

We must reduce the impact of the region’s transport system on the local environment, especially its impacts on air pollution, waterways, and ecological systems. Contaminated stormwater runoff from roads must be treated before entering waterways. The impact of new and improved transport infrastructure on the natural environment must be appropriately managed.

### Making progress

Key actions over the next 10 years to make progress on this outcome are:

- encouraging growth and urban development decision-making that supports compact, mixed-use urban form, reduces trip length, and lessens car dependency
- planning what interventions and investments are needed to achieve emissions reductions
- enabling and increasing mode shift through changes to the allocation of space on existing roads and streets to accelerate delivery of public transport plus walking and cycling networks
- improving public transport services and exploring ways technology can deliver better services at lower costs
- more actively managing carparking at major destinations and employment areas, to increase the use of public transport, walking, and cycling for trips to these locations
- identifying opportunities for smaller projects, including making the best use of the network, that can improve system outcomes
- ensuring appropriate standards, policies, and regulations are in place to reduce the impact of the transport system on the local environment
- supporting the *Heretaunga Plains Urban Development Strategy* target 60% growth in existing urban areas.<sup>20</sup>

**We must reduce the impact of the region’s transport system on the local environment, especially its impacts on air pollution, waterways, and ecological systems.**



## Healthy and safe people

### Challenges and opportunities

Te Matau-a-Māui Hawke's Bay has a relatively poor safety record. This is because of:

- run-off road crashes
- speeding
- impairment
- people not wearing seatbelts.<sup>21</sup>

Forecasted growth of freight traffic could increase these risks.

Safety efforts should focus on the Ahuriri Napier to Heretaunga Hastings urban areas, SH2 between Ahuriri and Waipukurau, and high-risk rural roads. In 2019, Wairoa District had the highest levels of personal risk in the country.<sup>22</sup>

Efforts to improve road safety are guided by the *Road to Zero: New Zealand's Road Safety Strategy 2020–2030*, associated *Action Plan 2020–2022*, and regional safety strategies.<sup>23</sup>

Undeveloped networks contribute to average rates of walking and cycling in Ahuriri and Heretaunga. The harmful impacts of vehicle tailpipe pollutants on health, especially on the respiratory systems of our youngest, oldest, and most vulnerable, are much greater than previously realised.<sup>24</sup>

Significant progress on the healthy and safe people outcome will support environmental sustainability and inclusive access. Providing extensive networks of safe walking and cycling facilities will encourage more people to use these healthy and sustainable travel options. Similarly, a focus on reducing deaths and serious injuries for vulnerable road users will also encourage more people to walk and cycle.

### Making progress

Continuing to realise safety plans and support dramatic changes to encourage walking and cycling will help the urban areas of Te Matau-a-Māui. New approaches to planning, design, and delivery, along with significant investment, are needed to accelerate progress.

Key actions over the next 10 years to make progress on this outcome are:

- rapidly rolling out a well-connected, separated cycling network largely through reallocation of existing street space
- requiring high-quality active mode infrastructure to be part of new developments
- encouraging and implementing regulatory changes that reduce harmful vehicle emissions and encourage the use of zero-emissions vehicles
- continuing to manage transport system noise through planning and mitigation, particularly along the Hawke's Bay Expressway
- targeting road policing and behaviour change programmes with a focus on alcohol and drug impairment, speeding, and people not wearing seatbelts
- managing safe and appropriate speeds on high-risk rural roads – this includes targeted use of safety cameras to reduce speeding
- continuing safety interventions targeting high-risk intersections, run-off roads crashes, high-volume roads, and head-on crashes on high-risk rural roads
- advocating for robust mobile network coverage in rural and regional areas.

**Providing extensive networks of safe walking and cycling facilities will encourage more people to use these healthy and sustainable travel options.**

## Inclusive access

### Challenges and opportunities

The growing number of those aged 65 and over means changes in housing, support services, and travel needs. The transport system needs to make sure the older population remains socially connected and able to participate in their communities.

The region's high reliance on private vehicles creates several access challenges, including:

- creating difficulties for those without easy access to, and use of, a private vehicle to fully participate in society
- placing significant pressure on household budgets to meet the high costs of car ownership and use
- limiting people's ability to travel in a way that best meets their needs because of poor travel choice.

Emerging technologies, such as on-demand shuttles being trialled in Heretaunga Hastings and Ahuriri Napier, could provide a shared-transport option. This can help people get around smaller and rural communities, and improve access to services in Ahuriri and Heretaunga.

Improved access to high-quality data and information will allow better management of the transport system to get the most out of existing infrastructure. Rural communities will need improved connections to Ahuriri and Heretaunga to access education, employment, and essential services.

### Making progress

Improving inclusive access will often align with making progress on other outcomes, especially where travel choice is improved and car dependency reduced. However, there may be challenging trade-offs to consider, such as balancing increased travel costs to reduce emissions while ensuring lower-income households aren't unfairly impacted.

Key actions over the next 10 years to make progress on this outcome are:

- shaping planning rules and urban development decision making to encourage more people to live in areas with better existing access to social and economic opportunities
- improving public transport services and expanding on-demand services where appropriate
- exploring opportunities to improve public transport affordability for lower-income households
- expanding and improving walking and cycling facilities, so low cost, sustainable, healthy travel options are safe and attractive for more journeys
- ensuring transport infrastructure and services are designed and provided to meet the needs of people of all ages and abilities
- improving access to opportunities for iwi Māori, including access to sites of cultural significance
- exploring opportunities to support the mobile or digital delivery of essential services.

**Emerging technologies, such as on-demand shuttles being trialled in Heretaunga Hastings and Ahuriri Napier, could provide a shared-transport option.**

## Economic prosperity

### Challenges and opportunities

Te Matau-a-Māui Hawke's Bay is a priority for regional development support. This is because of the long-term challenges the region faces, such as high unemployment and low incomes. The government has identified the area as needing investment to support regional economic development, particularly in Wairoa and Central Hawke's Bay.

Matariki - Hawke's Bay Regional Economic Development Strategy and Action Plan has identified several areas where transport can help regional social and economic development that include:

- supporting tourism such as improvements to SH38 through to Lake Waikaremoana to open up this key natural asset and improve the safety of tourists travelling through the area
- encouraging driver licensing and mentoring to support access to training and jobs.<sup>25</sup>

Over the next three decades, the transition to a low-emissions economy in line with the Climate Change Response (Zero Carbon) Amendment Act will mean change to the economy of Te Matau-a-Māui. Transport has a role to support this change, including for freight.

Technological change will have significant impacts on demand for travel and on the economy of Te Matau-a-Māui. The COVID-19 pandemic accelerated working from home, while future developments, like artificial intelligence and automation, could have an impact on the type and location of work people do.

Transport planning will need to be flexible in response to these changes, recognising high levels of uncertainty around the nature and location of future jobs and the impact of this on travel patterns.

### Making progress

Economic productivity and business competitiveness in Te Matau-a-Māui Hawke's Bay can be improved by a transport system that provides:

- a range of travel options with wide capacity
- reliable journey times
- safe and low-cost ways of getting around.

Key actions over the next 10 years to make progress on this outcome are:

- supporting improvements in social and economic outcomes in areas of high deprivation, particularly around access for isolated communities
- supporting resilient, reliable, and efficient freight and business travel around key parts of the network, especially around interregional connections and key freight and industrial hubs
- exploring opportunities to move to a more multimodal freight system with greater use of rail and coastal shipping
- managing increased transport costs in a way that doesn't excessively impact economic activity
- supporting the continued development of key economic centres by improving their access and amenity (attractiveness) for local residents
- supporting improved accessibility to local and town centres to allow these areas to flourish and better provide for the needs of residents
- supporting initiatives to increase visitor numbers, particularly in the north of the region.

**Transport planning will need to be flexible in response to these changes, recognising high levels of uncertainty around the nature and location of future jobs and the impact of this on travel patterns.**

## Resilience and security

### Challenges and opportunities

The next 30 years will see a growing risk of damage to road and rail networks because of increased rain and storm intensity, coastal and soil erosion, sea level rise, flooding, slips, and storm surges.<sup>26</sup>

Wairoa, Whirinaki Bluff, and access to the airport in Te Matau a Māui Hawke's Bay are vulnerable to coastal erosion and the long-term effects of climate change. Because of the impacts from Cyclone Gabrielle in 2023, these and other sections on the state highway and rail network were closed.

The region provides important connections to the north and inland to Te Papa-i-Oea Palmerston North. There are risks of land slips along these routes that could worsen with changing weather patterns.

More than ever, there must be a greater focus on maintaining existing assets at current levels of access and connectivity. There is a major opportunity to progress multiple outcomes by investing in maintenance and renewals, but this requires changes to current practices and increased funding.

To be resilient, the region's transport system must adapt to uncertainty and rapid change. For example, in recent years the popularity of e-scooters and then the need for social distancing during the COVID-19 pandemic highlighted:

- a need for more adaptable approaches to road space management
- unexpected benefits from past improvements to walking and cycling facilities.

Rapidly fluctuating fuel prices throughout 2022, caused by international events, also emphasised the need to reduce dependency on fossil fuel.

### Making progress

The transport system needs an ongoing focus on maintaining existing assets along with targeted improvements to reduce risks. We also need to expand our understanding of resilience in urban environments, to ensure planning work is flexible and adaptable to change.

Key actions over the next 10 years to make progress on this outcome are:

- rebuilding the network destroyed by Cyclone Gabrielle and improving resilience
- continuing design and planning work to identify and prioritise responses to natural hazards in high-risk areas – this includes working with communities to identify plans for when to defend, accommodate, or retreat
- continuing work to better understand routes that provide critical connections, the condition of these, the pressures, and the level of investment needed to address impacts – this includes assessments to identify priorities for network resilience
- engaging in local planning processes to avoid infrastructure and development in areas at risk of natural hazards and climate change
- seeking continuous improvement in network resilience through maintenance, renewals, and 'low cost/low risk' investments
- improving operational responses to events to support quick recovery following disruption to the land transport system
- shifting to more adaptable 'scenarios-based' planning
- improving personal security for people using the region's transport system.



**The transport system needs an ongoing focus on maintaining existing assets along with targeted improvements to reduce risks.**



# Te Matau-a-Māui – Hawke's Bay: Focusing our efforts



## For efficient and effective progress, transport challenges in Te Matau-a-Māui must be tackled in a cohesive way.

The directions below identify the most important issues to be resolved over the next 10 years to make progress towards transport outcomes.

- Rebuild the network destroyed by Cyclone Gabrielle and improve resilience.
- Reduce vehicle kilometres travelled (VKT), focusing on Ahuriri Napier and Heretaunga Hastings, in a way that's fair, equitable, and improves quality of life.
- Enable and support the region's transition to a low-carbon economy.
- Maintain and improve the resilience and efficiency of interregional connections to the north and south.
- Improve access to social and economic opportunities, especially by public transport, walking, and cycling.
- Significantly reduce the harm caused by the region's transport system, especially through improved road safety and reduced pollutants dangerous to health.
- Actively support, enable, and encourage growth and development in areas that already have good travel choices and shorter trip lengths.
- Rapidly accelerate the delivery of walking and cycling networks, predominantly through reshaping existing streets, to make these options safe and attractive.
- Explore new and emerging technologies, such as on-demand services, to improve access to social and economic opportunities.
- Better understand the impact of future economic transformation on travel patterns and freight volumes.
- Explore opportunities to move to a multimodal freight system with greater use of rail and coastal shipping.
- Advocate for better integration of land use and transport planning, including spatial planning for sustainable management of urban growth.
- Confirm how resilience risks will be addressed over time, and work with communities to plan for when to defend, accommodate, or retreat.
- Continue to implement road safety plans and programmes including those focused for iwi Māori.
- Improve or maintain, as appropriate, physical access to marae, papakāinga, wāhi tapu, and wāhi taonga.

These will be updated over time to focus effort on the most critical matters.

# References



1. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
2. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
3. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
4. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
5. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
6. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
7. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
8. Statistics New Zealand (2022). Subnational ethnic population projections: 2018(base)-2043. [stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043](https://www.stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043)
9. Statistics New Zealand (2022). Subnational ethnic population projections: 2018(base)-2043. [stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043](https://www.stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043)
10. Statistics New Zealand (2022). Subnational ethnic population projections: 2018(base)-2043. [stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043](https://www.stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043)
11. Te Puni Kōkiri (2022). Find iwi by local authority. [www.tkm.govt.nz/browse/](https://www.tkm.govt.nz/browse/)
12. Reserve Bank of New Zealand (2018). Te Ōhanga Māori 2018. [www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashx](https://www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashx)
13. Reserve Bank of New Zealand (2018). Te Ōhanga Māori 2018. [www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashx](https://www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashx)
14. Ministry of Business, Innovation and Employment (2022). Tourism data insights. <https://www.mbie.govt.nz/immigration-and-tourism/tourism-research-and-data/tourism-data-insights/>
15. Ministry of Transport (2019). National freight demand study 2017/18. [www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf](https://www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf)
16. Ministry of Transport (2019). National freight demand study 2017/18. [www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf](https://www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf)
17. Ministry for the Environment (2022). Emissions reduction plan. [environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reduction-plan](https://www.environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reduction-plan)
18. Ministry of Transport (2019). Household travel survey. [www.transport.govt.nz/area-of-interest/public-transport/new-zealand-household-travel-survey/](https://www.transport.govt.nz/area-of-interest/public-transport/new-zealand-household-travel-survey/)
19. SmartGrowth partnership and Waka Kotahi NZ Transport Agency (2019). Urban form and transport initiative foundationrReport (draft - August 2019). [ufti.org.nz/wp-content/uploads/2019/08/21456-UFTI-Foundation-Report-V13.pdf](https://ufti.org.nz/wp-content/uploads/2019/08/21456-UFTI-Foundation-Report-V13.pdf)
20. Hawke's Bay Regional Council (2017). Heretaunga Plains Urban Development Strategy. <https://www.hpuds.co.nz/>
21. Waka Kotahi NZ Transport Agency (2022). Crash analysis system. [nzta.govt.nz/safety/partners/crash-analysis-system](https://www.nzta.govt.nz/safety/partners/crash-analysis-system)
22. Waka Kotahi NZ Transport Agency (2022). Crash analysis system. [nzta.govt.nz/safety/partners/crash-analysis-system](https://www.nzta.govt.nz/safety/partners/crash-analysis-system)
23. Ministry of Transport (2019). Road to zero – New Zealand's road safety strategy 2020-2030. [www.transport.govt.nz/assets/Uploads/Report/Road-to-Zero-strategy\\_final.pdf](https://www.transport.govt.nz/assets/Uploads/Report/Road-to-Zero-strategy_final.pdf)
24. Waka Kotahi NZ Transport Agency (2022). Research report 696 health and air pollution in New Zealand 2016 (HAPINZ 3.0) He rangi hauora he iwi. [nzta.govt.nz/resources/research/reports/696/](https://www.nzta.govt.nz/resources/research/reports/696/)
25. Matariki Hawke's Bay Regional Development Strategy for economic, inclusive and sustainable growth (2019). Matariki – Hawke's Bay Regional Economic Development Strategy and Action Plan. <https://www.hbredecs.nz/>
26. Ministry for the Environment (2018). Climate change projections for the Gisborne and Hawke's Bay region. [environment.govt.nz/facts-and-science/climate-change/impacts-of-climate-change-per-region/projections-gisborne-hawkes-bay-region/](https://www.environment.govt.nz/facts-and-science/climate-change/impacts-of-climate-change-per-region/projections-gisborne-hawkes-bay-region/)